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APR 27 2007

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

REMARKS

In view of the following remarks, the Examiner is requested to allow Claims 1-24, the only claims pending and under examination in this application.

Claims 1 and 11 have been amended to indicate that the method is a method of fabricating a chemical array of biopolymeric ligands. Support for these amendments can be found throughout the specification and claims as originally filed. For instance, support may be found at paragraphs 5, 51 and 60. Accordingly, no new matter has been added by way of these amendments.

As no new matter has been added by way of these amendments, entry thereof by the Examiner is respectfully requested.

***Claim Rejections - 35 U.S.C. § 102***

Claims 1-8 and 11-18 and 24 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Fujimori et al. 2001, (U.S. Patent No. 6,328,404).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)."

An element of the claims is a method of fabricating a chemical array of biopolymeric ligands.

Fujimori is deficient in that it fails to teach the fabrication of a chemical array of biopolymeric ligands. Fujimori fails to teach this element because Fujimori is directed to a printing apparatus for the printing of ink. As ink is not a biopolymeric ligand, Fujimori fails to teach all the elements of the rejected claims, and therefore, fails to anticipate the claimed invention. As such this rejection may be withdrawn.

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

Claims 1-11 and 22-24 have been rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Hsieh (Hsieh et al., March 2004, J. of Biomolecular Screening 9: 85-94).

An element of the claims is determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition.

The Office asserts that Hsieh teaches this element because Hsieh discloses the following:

For piezo injectors, fluid viscosity and waveform influence the droplet size more significantly than other parameters. With the DNA probe solution, we were able to demonstrate that drop size could be varied in a controlled way by changing the waveforms. Specifically, 3 variants of 1 common waveform produced droplets of 59-, 64-, and 73- $\mu$ m spherical diameters, which corresponds to 103, 134, and 206 pL of fluid delivered. Combining the features of small and controllable individual drop volumes with high firing frequency, the system allows a variable array feature size and fluid usage that does not sacrifice overall throughput.

As can be seen with reference to the above excerpt, contrary to the assertion of the Office, Hsieh does not teach the determination of a chemical array layout wherein each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition. Rather, all that Hsieh discloses is that the drop size can be varied in a controlled way. Simply controlling the drop size does not equate with determining an array layout wherein each feature of the array has a size that is chosen based on its biopolymeric ligand composition. This element is simply not disclosed in Hsieh, and therefore, Hsieh fails to anticipate the claimed invention. As such, this rejection may be withdrawn.

#### ***Claim Rejections - 35 U.S.C. § 103***

Claims 9, 10, 19-23 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Fujimori (U.S. Patent No. 6,328,404) in view of Blanchard (U.S. Patent No. 6,419,883).

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

The law is clear that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In re Fine, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 21 USPQ2d 1941 (Fed. Cir. 1992). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 231 USPQ 375 (Fed. Cir. 1986). Finally, the prior art reference, or references when combined, must teach or suggest all the claim limitations. In re Royka, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Office acknowledges that Fujimori is deficient in that it fails to teach or suggest a method of making a nucleic acid or peptide array. The Office, therefore, relies upon Blanchard to remedy the deficiencies of Fujimori.

The Applicants, however, respectfully disagree and contend that a *prima facie* case of obviousness has not been established because Fujimori and Blanchard cannot be properly combined, and even if one were to combine the references, the combination fails to teach all the elements of the rejected claims.

Fujimori and Blanchard cannot be properly combined because to do so would be to change the principle of operation of Fujimori. According to the court's ruling in In re Ratti, if a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

As set forth above, Fujimori is directed to a printing apparatus for use in a color printer. Fujimori is directed to producing dots of color that have a particular pitch that enables the production of an image that has a rich tone which can be

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

printed at high speed without causing banding issues. See the abstract of the invention.

In advancing this rejection, the Office proposes replacing the colored ink in Fujimori with nucleic acids and peptides as allegedly disclosed in Blanchard. However, as Fujimori is directed to producing colored print, this would completely change the principle of operation of Fujimori in contravention of the courts' ruling in *In re Ratti*. The proposed modification would change the principle of operation of the Fujimori device because the Fujimori device would no longer be used for the production of color images on paper, but rather for the deposition of biopolymers on to a substrate. Specifically, instead of printing colored ink on paper, the Fujimori device would be depositing biopolymers on a substrate, a function neither taught nor suggested in Fujimori. For this reason alone, this rejection may be withdrawn.

Furthermore, Fujimori and Blanchard cannot be properly combined because Fujimori constitutes non-analogous art to that of the Applicants. As is described in greater detail herein below, Fujimori is neither in the Applicants' field of endeavor nor does it relate to the particular problem with which the Applicants were concerned.

According to the Federal Circuit in *In re Oetiker*, in order to rely on a reference as a basis for rejection of an applicant's invention under 35 U.S.C. § 103, the reference must either be in the field of the Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

The Applicants field of endeavor is the fabrication of biopolymeric ligand arrays. See paragraph 1. The particular problem with which the Applicants are concerned is the production of biopolymeric ligands in an array layout wherein the features of the array layout have a size that is chosen based on the biopolymeric ligand composition. See paragraphs 5 and 6.

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

Fujimori is neither in the Applicants' field of endeavor nor is it pertinent to the particular problem with which the Applicants were concerned. Fujimori is not in the Applicants' field of endeavor because Fujimori is not directed to fabrication of biopolymeric ligand arrays, but rather Fujimori is directed to printer systems that print colored ink on paper. See column 1, line 65 to column 2, line 2 and column 21, lines 8 to 19. Printing colored ink on paper is different from fabricating a biopolymeric ligand array. Specifically, to print ink on a piece of paper, drops of ink must simply be deposited to a position on the paper. See column 21, lines 8 to 19. To fabricate a biopolymeric ligand on a substrate involves a variety of different, complex reaction chemistries. See the Applicants' specification at paragraphs 2-4. Hence, Fujimori is not in the Applicants' field of endeavor.

Fujimori is not pertinent to the particular problem with which the Applicants were concerned, because Fujimori is not concerned with the fabrication of biopolymeric ligands in an array layout wherein the features of the array layout have a size that is chosen based on the biopolymeric ligand composition. Rather, Fujimori is concerned with the high speed printing of dots at precise dot pitches that enables a color image to have a rich tone without banding. See the Abstract. As Fujimori is concerned with the problems associated with the placement of ink dots on paper and not the problems of fabricating an array of biopolymeric ligands, Fujimori is not pertinent to the particular problem with which the Applicants were concerned.

In view of the above, Fujimori represents non-analogous art to that of the Applicants and one of skill in the art would not look to Fujimori for a solution to a problem in the fabrication of biopolymeric ligand arrays. One of skill in the art would not look to Fujimori for a solution to such a problem because Fujimori is directed to depositing ink on paper, which is different from the deposition of a biopolymer ligand on a substrate for the fabrication of a chemical array, and as such Fujimori would not recognize that problem nor suggest a solution to that problem.

Because Fujimori is neither in the Applicants' field of endeavor nor pertinent to the particular problem with which the Applicants were concerned, Fujimori represents non-analogous art to that of the Applicants' and thus, the recited

Atty Dkt. No.: 10031095-01  
Appl. No.: 10/828,357

combination relied upon by the Office is improper. For this reason alone, this rejection may be withdrawn.

Additionally, even if one were to combine the references, the combination fails to teach or suggest all the elements of the rejected claims. Specifically, an element of the rejected claims is determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition. Because Fujimori is directed to printing ink it does not teach or suggest the element of determining a chemical array layout wherein each feature has a size that is chosen based on its biopolymeric ligand composition. As Blanchard was cited for its alleged disclosure of producing nucleic acid and peptide arrays it fails to remedy the deficiencies of Fujimori.

In view of the above, a *prima facie* case of obviousness has not been established because Fujimori and Blanchard cannot be properly combined in that in doing so the principle of operation of Fujimori would be changed. Additionally, a *prima facie* case of obviousness has not been established because even if one were to combine the references, the combination fails to teach all the elements of the rejected claims, namely, determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition. Consequently, the Applicants respectfully request that this rejection be withdrawn.

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Appl. No.: 10/828,357

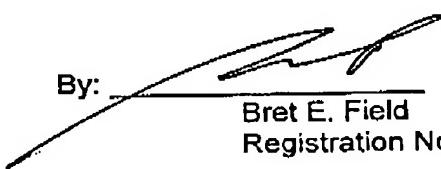
**CONCLUSION**

In view of the amendments and remarks above, Applicant(s) respectfully submit(s) that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret E. Field, (650) 327-3400.

The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078, order number 10031095-01.

Respectfully submitted,

Date: April 27, 2007

By: 

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